

REMARKS

Claims 17-24 are pending. Claims 17, 18 and 20 -24 are rejected. Claim 19 is objected to. Claim 17 is amended. Claims 17-24 are submitted for further consideration at this time. Applicants respectfully request reconsideration and withdrawal of all rejections.

Claim Rejections - 35 U.S.C. 112, first paragraph

Claims 17 is rejected under 35 U.S.C. 112, first paragraph for an alleged lack of enablement. It is alleged that the specification does not reasonably enable all aliphatic, cycloaliphatic or aromatic polyisocyanates.

Applicants respectfully disagree. Applicants point out that the requirement that the polyisocyanates have NCO functionality higher than 2 is critical in the claimed invention. In fact, Applicants have demonstrated that only polyisocyanates having NCO functionality higher than 2 are suitable for use in the claimed invention. For instance, see Example 1 using polyisocyanate Vestanat® T1890, Example 2 using polyisocyanate Tolonate® HDT-LV, and Example 9 (comparative) using instead a diisocyanate (IPDI), that is, a polyisocyanate other than that required by the claimed invention. In addition, relevant application Example 11 shows that the oligourethane of Example 9 (comparative) has inferior properties as compared oligourethanes obtained with the claimed invention, in that hydro and oil repellency of the obtained coating is poor. See page 36 of the specification, Table 1, row corresponding to Example 9 (comparative).

Therefore, Applicants submit that those of ordinary skill in the art would understand that what is referred to in claim 17 is not a polyisocyanate with a particular formula, but a polyisocyanate having NCO functionality higher than 2, as claimed. Applicants therefore urge that in view of the specification including the Examples, those of ordinary skill in the art would understand that any commercial polyisocyanate having NCO functionality higher than 2 would be suitable for use in the claimed invention. No undue experimentation would be required of those of ordinary skill in the art in determining polyisocyanates having NCO functionality higher than 2, as claimed.

Finally, Applicants point out that since claim 17 requires fluorinated oligourethanes having a number average molecular weight lower than 9,000, those of ordinary skill in the art would understand that the molecular weight of the polyisocyanates should be low. This would also be known indirectly by the molecular weights and relevant molar amounts of components b), c) and/or e), and of the NCO equivalents for the preparation of the oligourethane, taking into account the requirement of oligourethanes having a number average molecular weight lower than 9,000, as claimed.

Applicants therefore urge that those of ordinary skill in the art would be able to practice the claimed invention with no undue experimentation.

Claim Rejections - 35 U.S.C. 112, second paragraph

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite. It is alleged that the phrase "aliphatic, cycloaliphatic or aromatic polyisocyanates" is

vague. Applicants respectfully disagree. As discussed above, Applicants respectfully submit that those of ordinary skill in the art would recognize the meaning of this phrase as set forth in the claims and described throughout the specification.

Is it further alleged that the phrase "objects films" is vague. Applicants respectfully point out that this aspect of the rejection is moot in view of the claim amendments indicated herein.

Applicants urge that all claims are clear and definite.

Claim Rejections - 35 U.S.C. 103

Claims 17-18 and 20-24 are rejected under 35 USC §103(a) as being obvious over Marchetti et al. (EP 0812891).

Applicants respectfully disagree. The present invention as set forth in claim 17 can be seen above. Applicants wish to point out that the claimed invention is concerned with addressing the technical problem of desirable methods to form protective films on the surfaces of materials having high porosity, the method comprising: applying fluorinated oligourethanes in the form of aqueous dispersions, wherein the oligourethanes are optionally crosslinkable, to impart hydro and oil repellent properties to the surfaces. Applicants have now found that the claimed invention is able to address this technical problem. It is pointed out that in the claimed invention, the oligourethanes have a branched structure. Moreover, as stated at pages 17-18 of the specification, the aqueous dispersions of fluorinated oligourethanes can be applied: to give uncrosslinked polyfunctional polymeric films, as

monocomponent aqueous dispersions capable to give crosslinking after application to the surface to obtain crosslinked polymeric films, as bi-component aqueous dispersions containing a suitable cross-linking agent.

In contrast, Marchetti et al. is directed to protective coatings of compositions comprising the following components: A) a (per)fluoropolyetheral prepolymer having a polyisocyanic functionality; B) a (per)fluoropolyether having bifunctional hydroxylic functionality in admixture with mono- or polyfunctional perfluoropolyethers having an hydroxylic termination; C) an organic solvent. See page 3, lines 1-23 of Marchetti et al. Marchetti also discloses that the polymer components should be kept in dry organic solvents. In fact, the solvent of Marchetti et al. is disclosed as being urethane grade, that is, with a content in water lower than 100 ppm to avoid gelling of the system sensitive to moisture. See page 6, lines 8-9 of Marchetti et al. The polymers, that is, the components having A) polyisocyanic functionality and B) the bifunctional hydroxy perfluoropolyether, are applied on a substrate and crosslinked in order to form coatings. See page 2, lines 1-2 and page 3, line 25 of Marchetti et al.

Applicants therefore urge that no invention as claimed is taught or suggested by Marchetti et al. Repeating the statements of the preceding Office Action dated September 9, 2002, the Patent Office seems to try and demonstrate that Marchetti et al. teaches or suggests both the crosslinking of polyurethanes and the molecular weight of the monofunctional perfluoropolyether having a hydroxylic functionality. In fact, at page 6 of the

pending Office Action, it is stated that Marchetti et al. differs from the claimed invention in that the crosslinking oligourethane and the average number molecular weight of the mono perfluoropolyether having hydroxylic functionality are not mentioned.

However, Applicants respectfully submit that the comments of the Office Action entirely miss the point, with respect to the claimed invention. It is again noted that the claimed invention is concerned with the technical problem of aqueous dispersions of fluorinated oligourethanes for imparting hydro and oil repellency to surfaces. Applicants therefore first point out that those of ordinary skill in the art would find no teaching or suggestion in Marchetti et al. with respect to solving the technical problem addressed by the claimed invention, by forming films having hydro and oil repellent properties with aqueous dispersions of fluorinated oligourethanes. Indeed, the compositions of Marchetti et al. quite clearly give rise to gelling in the presence of water, and therefore, are inoperative in aqueous dispersions as required by the claimed invention.

Applicants also point out that Marchetti et al. contains no teaching or suggestion regarding the application of a coating composition containing an oligourethane. It is to be noted that the Marchetti et al. components A) polyisocyanate having free NCO groups, see page 3, line 1 of Marchetti et al., and B) bifunctional hydroxyl perfluoropolyether are crosslinked on the surface to which they are applied, forming a coating of polyurethane crosslinked polymer. That is, the crosslinking in Marchetti et al. is essential in that the

polyurethane must be formed on the surface since the beginning composition, as shown above, contains polyurethane components. If the formulations of Marchetti were applied without cross-linking, no coating would be expected to form.

In contrast, in the claimed invention the formed oligourethane, obtained by reacting the monomers and macromers as claimed, is applied to surfaces so as to impart hydro and oil repellent properties thereon. Therefore, in the claimed invention, crosslinking is merely an optional feature and not essential to impart the improved properties to treated surfaces. Indeed, for the application of oligourethane dispersions without polymer crosslinking, as claimed, see for instance Examples 5 and 7, wherein the treated surfaces show hydro and oil repellent properties. See page 30, lines 20-24 and page 32, lines 4-7 of the specification. Most important, Applicants point out that without access to the disclosure of the present application, those of ordinary skill in the art would find in Marchetti et al. no teaching or motivation to apply an oligourethane to a surface to form a coating thereon, since Marchetti et al. quite clearly teaches that the coating of polyurethane is formed by crosslinking A) with B).

Applicants also wish to address the Office Action comments concerning the molecular weight of the monofunctional perfluoropolyether having hydroxylic functionality that is allegedly obvious over the molecular weight of the bifunctional. Applicants point out that such comments are irrelevant, since based on the disclosure of Marchetti et al., those of

ordinary skill in the art would not be able to obtain any uncrosslinked oligourethanes as in the claimed invention.

Finally, Applicants conclude that Marchetti et al. contains no teaching or suggestion to impart hydro and oil repellent properties to surfaces, by forming non-crosslinked oligourethane films prepared from aqueous dispersions of fluorinated oligourethanes. Moreover, Marchetti et al. contains no teaching or suggestion regarding the water dispersible oligourethanes of the claimed invention since, as discussed above, the disclosed components A) polyisocyanate and B) hydroxy perfluoropolyether are crosslinked after being applied to surfaces in order to form a polyurethane coating. Therefore, in that Marchetti et al. fails to teach or suggest the claimed invention, the rejection should be withdrawn.

Claim Objections

Claim 19 is objected to as being dependent on a rejected base claim. Applicants urge that the objection is moot in view of the above amendments and remarks. Applicants urge withdrawal of all objections.

In view of the amendments and remarks above, Applicants submit that this application is in condition for allowance and request favorable action thereon.

In the event this paper is not timely filed, Applicants hereby petition for an appropriate extension of time. The fee for this extension may be charged to our Deposit

Account No. 01-2300, along with any other additional fees which may be required with respect to this paper referencing Attorney Docket No. 108910-00009.

Respectfully submitted,
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